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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,842	06/27/2006	John T. Apostolos	20030216	3502

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EXAMINER	
NGUYEN, HOANG V	
ART UNIT	PAPER NUMBER
2821	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,842	APOSTOLOS, JOHN T.	
	Examiner	Art Unit	
	Hoang V. Nguyen	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *22-38* is/are allowed.

6)☒ Claim(s) *1-21,39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 39 recites the limitation "said film" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 17 does not recite any "film". Should claim 39 depend on claim 38 instead? Clarification/correction required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Apostolos (US 6,833,815 B2).

Regarding claim 1, Apostolos (Figures 3 and 7) discloses a flush mount meander line loaded antenna 30.

Regarding claim 2, Apostolos (Figures 3 and 7) discloses a flush mount meander line loaded antenna 30 having a plate 32 and an associated meander line 39 located within an open conductive cavity 54 such that top surface of said plate is exposed at the opening of said cavity.

Regarding claim 3, as applied to claim 2, Figure 3 of Apostolos shows a conductive ground plane sheet 48 having an aperture therethrough, said cavity having an upper lip electrically connected to said sheet at said aperture.

Regarding claim 4, as applied to claim 2, Apostolos (col 5, lines 29-32) teaches that the volume of said cavity is greater than .003 λ^3, with λ relating to the lowest frequency at which said antenna is to operate.

Regarding claim 5, as applied to claim 2, Figure 4 of Apostolos shows that the antenna includes a number of plates 32, 34, 64 and 66 and associated meander lines and wherein said plates are triangularly shaped.

Regarding claim 6, as applied to claim 5, Apostolos (Figures 3 and 4) shows that there are four of said plates mounted in said cavity in a quad configuration.

Regarding claim 7, as applied to claim 6, Figure 5 of Apostolos shows a 90° hybrid having a pair of inputs and a pair of outputs, said inputs connected to feed points of opposed plates, said pair of outputs carrying right hand circular polarized and left hand circular polarized signals respectively.

Regarding claim 8, as applied to claim 3, Figure 4 of Apostolos shows that the plate has an outer edge spaced from an adjacent upper lip of said cavity, and wherein said meander line is connected between said outer edge and an adjacent portion of the upper lip of said cavity.

Regarding claim 9, as applied to claim 6, Apostolos (col 6, lines 11-20) teaches that the plates are fed in phase to provide a vertically polarized antenna.

Regarding claim 10, as applied to claim 6, Figures 4 and 5 of Apostolos shows that the plates are fed to provide a circularly polarized antenna.

Regarding claims 11-13, the antenna structure of Apostolos, as discussed in claims 1-4, would enable a method for providing a wide bandwidth miniaturized antenna flush mounted to a conductive surface comprising the steps of as claimed.

Regarding claim 14, the antenna structure of Apostolos, as discussed in claims 1 and 2, would enable a method for providing a wideband reduced-size antenna flush mounted to a conductive surface to avoid the necessity of providing the antenna with a large cover comprising the steps of providing a wideband meander line loaded antenna; and embedding the wideband meander line loaded antenna in a conductive cavity opened through the conductive surface.

Regarding claims 15 and 16, as applied to claim 14, Figure 7 of Apostolos shows that the antenna is mounted in the skin of an aircraft, with the flush mounting preventing turbulent flow at or downstream from the antenna.

Regarding claim 17, as applied to claim 15, claim 15 of Apostolos teaches that the vehicle is a land vehicle.

Regarding claim 18, the antenna structure of Apostolos (Figures 3 and 9B) would enable a method of reducing the thickness of a handheld device 112 requiring a wide band antenna and having a conductive case comprising the steps of providing a wideband meander line loaded antenna; and embedding the antenna in a cavity submerged from a surface of the conductive case, whereby the antenna is flush mount to the case so as not to increase the thickness thereof.

Regarding claim 19, as applied to claim 18, Figure 9B of Apostolos shows that the handheld device is a wireless handset.

Regarding claim 20, as applied to claim 18, claim 18 of Apostolos teaches that the handheld device is a laptop computer.

Regarding claim 21, the antenna structure of Apostolos (Figures 3 and 9B) would enable a method of providing a mechanically robust wideband antenna for a handheld device 112 comprising the steps of providing a meander line loaded antenna 30; and embedding the antenna in a cavity 54 submerged from a surface of the device, thus to avoid elements which stick out from the device which are easily damaged or broken off.

Allowable Subject Matter

5. Claims 22-38 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 22, none of the prior art of record, either taken alone or in combination, fairly teaches or suggests a method for decreasing the VSWR of a loop type meander line loaded antenna having a feed comprising placing a strip of lossy dielectric material across the feed.

Claims 23-27 are allowed for depending on claim 22.

Regarding claim 28, none of the prior art of record, either taken alone or in combination, fairly teaches or suggests a method of decreasing the VSWR of a loop type meander line loaded antenna having a feed comprising placing a capacitor across the feed for frequencies below the frequency at which the antenna exhibits significant inductive reactance; and placing a series connected capacitor and resistor across the feed for frequencies above the frequency at which the antenna exhibits significant inductive reactance.

Claims 29-31 are allowed for depending on claim 28.

Regarding claim 32, Apostolos discloses a wide bandwidth meander line loaded antenna comprising a loop type meander line loaded antenna having a pair of top plates and a feed

therebetween. Apostolos, however, fails to further teach a layer of lossy dielectric material across the feed in order to minimize the VSWR of the antenna.

Claims 33-38 are allowed for depending on claim 32.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,373,446 and US 6,999,037 disclose meander line loaded antennas.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V. Nguyen whose telephone number is (571) 272-1825. The examiner can normally be reached on Mondays-Fridays from 8:00 a.m. to 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hvn
10/5/07

HOANG V. NGUYEN
PRIMARY EXAMINER